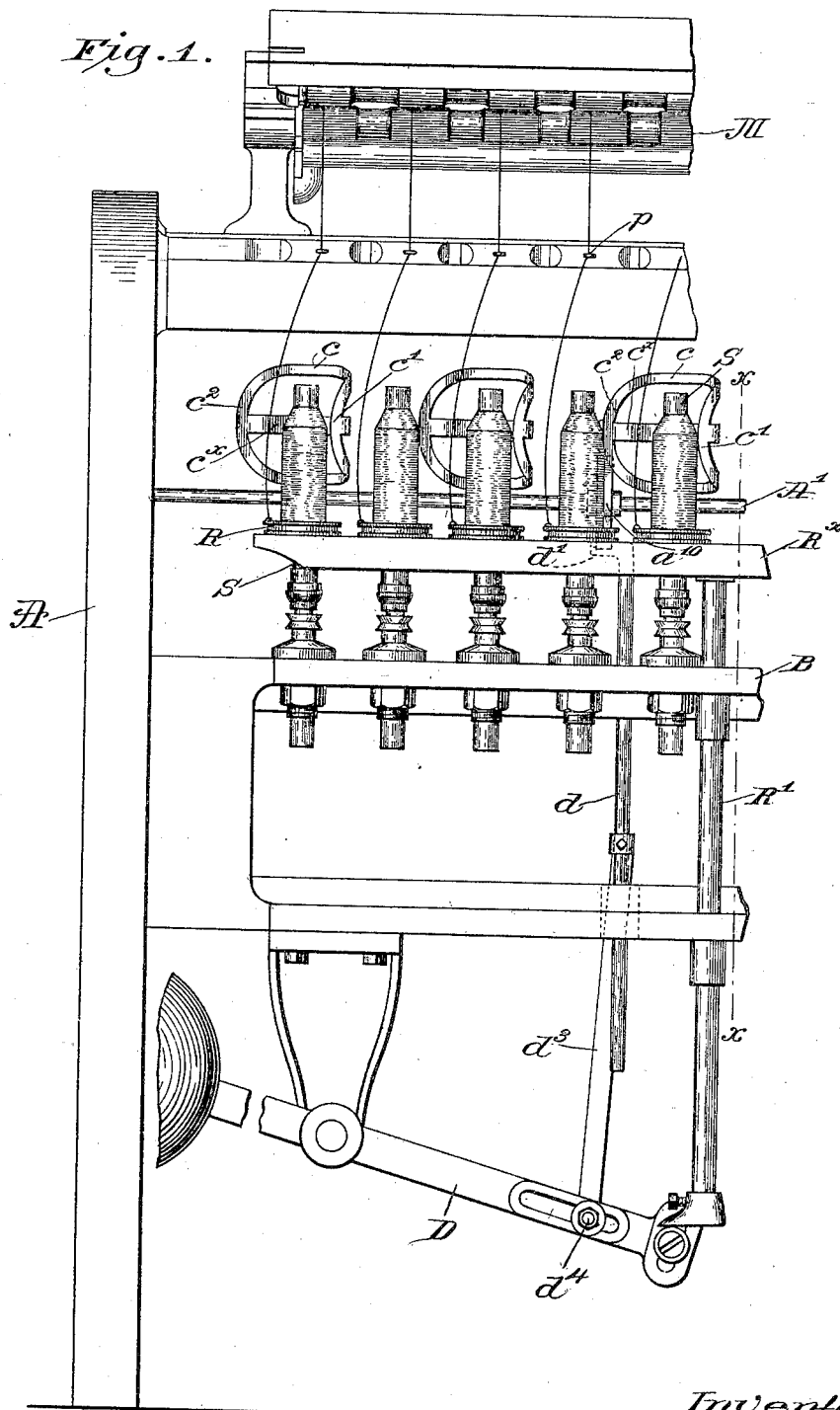


G. O. DRAPER.
YARN SPINNING APPARATUS.

(No Model.)

(Application filed June 9, 1900.)

2 Sheets—Sheet 1.



Witnesses:
Frank G. Kattie.
Thomas J. Drummond.

Inventor,
George O. Draper,
by Crosby Gregory,
Attys.

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YARN SPINNING APPARATUS.

(No Model.)

(Application filed June 9, 1900.)

2 Sheets—Sheet 2.

Fig. 2.

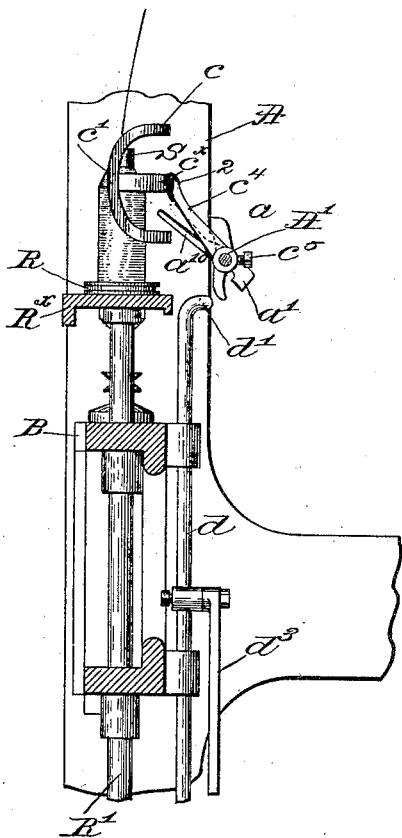


Fig. 3.

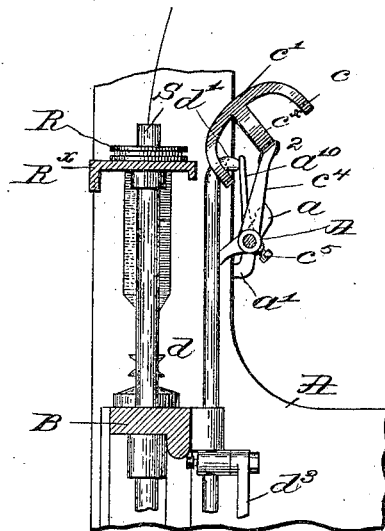


Fig. 4.

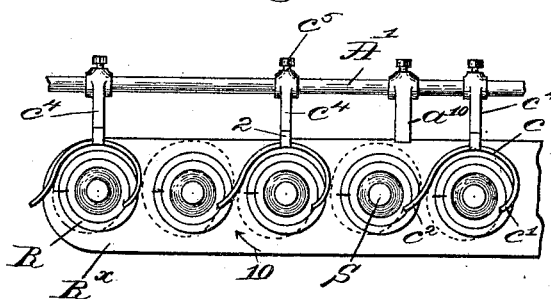


Fig. 5.

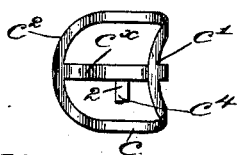


Fig. 6.

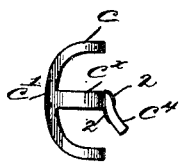
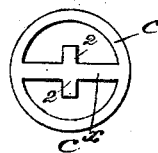


Fig. 7.



Witnesses:
Frank G. Hattie.
Thomas Drummond.

Inventor:
George O. Draper,
by Leroy Gregory,
Atty's.

UNITED STATES PATENT OFFICE.

GEORGE O. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE
DRAPER COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

YARN-SPINNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 676,839, dated June 18, 1901.

Application filed June 9, 1900. Serial No. 19,657. (No model.)

To all whom it may concern:

Be it known that I, GEORGE O. DRAPER, a citizen of the United States, residing at Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Yarn-Spinning Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has more particularly for its object the production of a novel and efficient separator to prevent the engagement of ballooning yarns from adjacent spindles, the separators being so constructed and arranged that the number of separators necessary is substantially half the number of spindles.

Figure 1 is a front elevation of a portion of a spinning-frame with one embodiment of my invention applied thereto. Fig. 2 is a vertical sectional detail on the line $x x$, Fig. 1, looking toward the left. Fig. 3 is a similar view, but showing the portion of the separators as the ring-rail reaches the upper end of its traverse. Fig. 4 is a top or plan view showing the relative arrangement of the spindles or separators. Fig. 5 is a front elevation of one of the separators detached. Fig. 6 is a side elevation thereof, and Fig. 7 is a face view of the separator-blank before being bent into operative shape.

The frame A, spindle-rail B, sleeve whirl-spindles S, rotatably mounted on the spindle-rail and driven in any suitable manner, the vertically reciprocating ring-rail R^x, the rings R, lifter-rods R', and lifter-arms D, only one of each being shown, actuated in usual manner, the pig-tails p , and the delivery-rolls M are and may be of usual or well-known construction.

In accordance with my invention the separators are preferably made of thin sheet metal, stamped or cut out to form a blank, as shown in Fig. 7, and comprising a circular rim c and a transverse diametral strut c^x , which may be provided with ears 2 3 for a purpose to be described. The blank is bent transversely or in the direction of the length of the strut and mainly in a circular arc, as shown in Fig. 4, the body or main portion of the separator thus lying in a substantially

cylindrical surface; but one side of the separator is bent inward at or near its front edge, as at c' , on a curve of smaller radius, while the other side, as c^2 , is bent out or flared at its front edge. The inturned side is the delivery side for the yarn, and the flaring side is the receiving side. The ears 2 may be bent around a supporting rock-shaft and secured thereto, or they may be secured to arms c^4 , held in place on the rock-shaft A' by suitable set-screws c^5 , the rock-shaft being mounted back of the ring-rail path in bearings on the frame, stops a and a' , fast on the shaft, limiting the rocking movement of the shaft in each direction.

As shown in Fig. 3, the separators are mounted behind and opposite alternate spindles and partly surrounding the same, the front edges of the separators extending beyond the center line of the series of spindles, the balloon-path of the yarn being indicated by dotted lines. The spindles rotate in the direction of arrow 10, Fig. 3, and the yarn of each partly-surrounded spindle is guided by the main portion of its opposite separator in a circular path till it is thrown in toward the spindle by the inturned side c' , thus restricting the ballooning till the yarn flies across the gap and strikes the convex inner face of the flared side c^2 and by it is directed to the main part of the separator. The yarn of the intermediate spindle in whirling around strikes the concave face of the side c^2 of one adjacent separator and is swept in thereby toward the spindle, restricting its path, so that it cannot belly out beyond the upright edge c' of the separator on the other side. As a matter of fact the yarn impinges against the convex face of the inturned side c' of this separator and is directed toward the back of the ring-rail, the inturning of the side c' preventing any accidental catching of the thread on the upright edge thereof. Whipping of adjacent yarns against each other is thus prevented, and with a small number of separators, which latter are very cheap in construction and light in weight, yet strong and durable.

Any convenient means may be provided for controlling the movement of the separators as the ring-rail is traversed, and herein a vertically-movable rod d , having a cam-head d'

and supported in bearings on the frame, has pivotally connected with it a link b^3 , jointed at its lower end at d^4 to the lifter-arm D. When the actuator d is lifted, its cam-head d' engages a finger a^{10} , fast on the shaft A' , and rocks the latter until the separators will be in the positions shown in Fig. 4, when the ring-rail is in its highest position. As the rail descends the actuator d will be lowered and the weight of the separators will swing them forward and downward and into normal positions, Figs. 1 and 2, after the cam-head d' descends below the finger a^{10} . Viewing the separator sidewise, as in Figs. 2, 3, and 6, it is semi-elliptical in shape, divided on the longer axis, the front edges of the separator sides merging by curves into the top and bottom edges.

Changes or modifications may be made in the construction herein shown and described without departing from the spirit and scope of my invention.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a separator for spinning-frames, consisting of a circular rim and transverse strut, bent in the direction of the length of the strut to present a flaring and an inturned side.

2. As a new article of manufacture, a sheet-metal separator for spinning-frames, having a continuous ring forming transversely-curved skeleton sides, and a cross-strut connecting the sides between their top and bottom portions, one side being turned inward, at or near its front edge.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE O. DRAPER.

Witnesses:

E. D. BANCROFT,
ERNEST W. WOOD.